

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: LUMARK

Report Number: P196286

Luminaire Tested: **NAV-AF-02-D-UNV-T2R**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P196286  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P24459)  
Test Lab: INNOVATION CENTER P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: LUMARK  
Catalog Number: NAV-AF-02-D-UNV-T2R  
Description: NAVION ROADWAY AND AREA LUMINAIRE  
(2) 70 CRI, 4000K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13058 lumens  
Efficiency: N/A  
Efficacy: 115.6 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 1' x H: 0')  
IES Classification: Type II - Short - Semi-Cutoff  
BUG Rating: B2 - U0 - G2

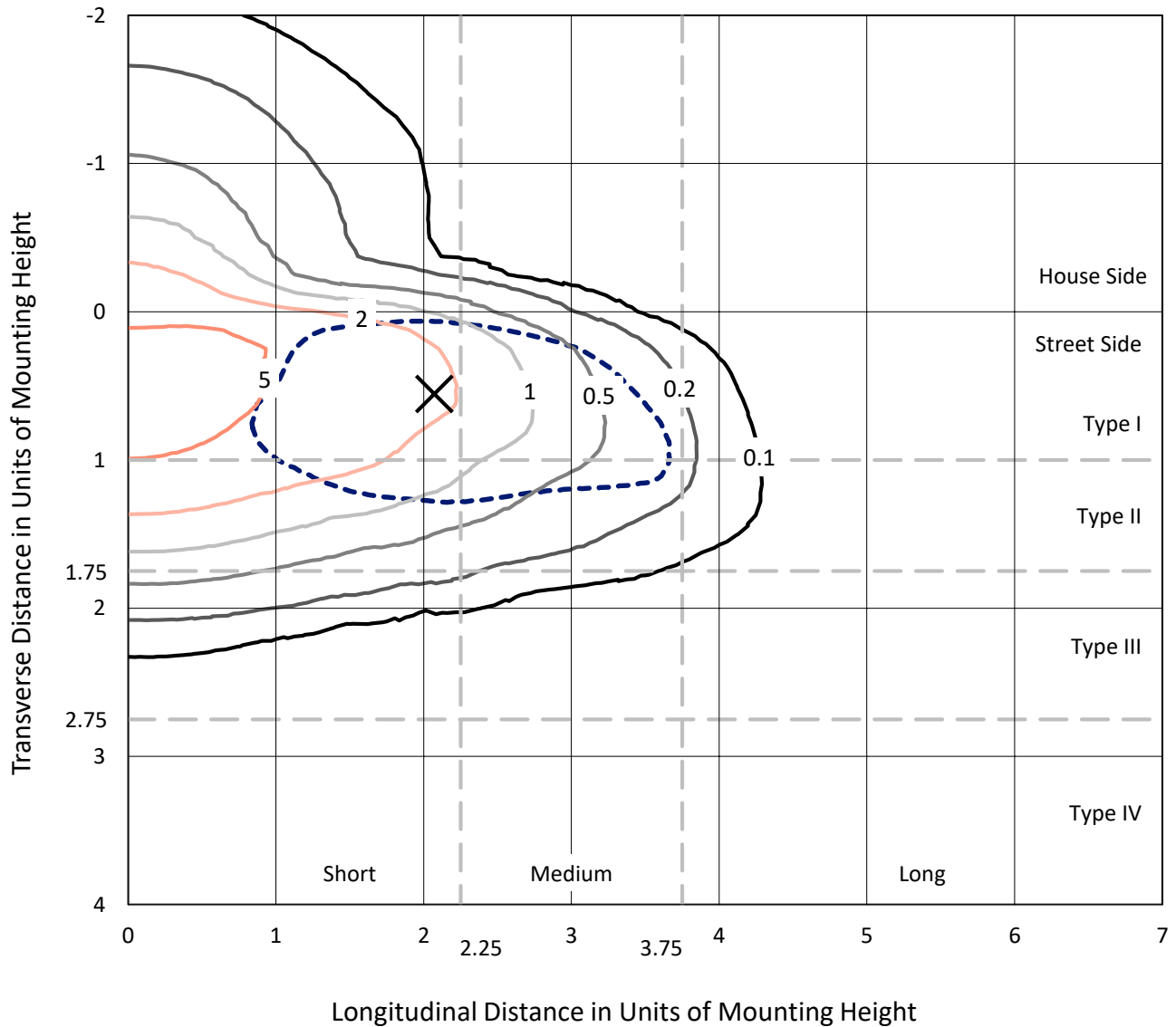
Input Watts (W): 113  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



REPORT NUMBER: P196286  
 CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

### Iso-Footcandle Lines of Horizontal Illumination

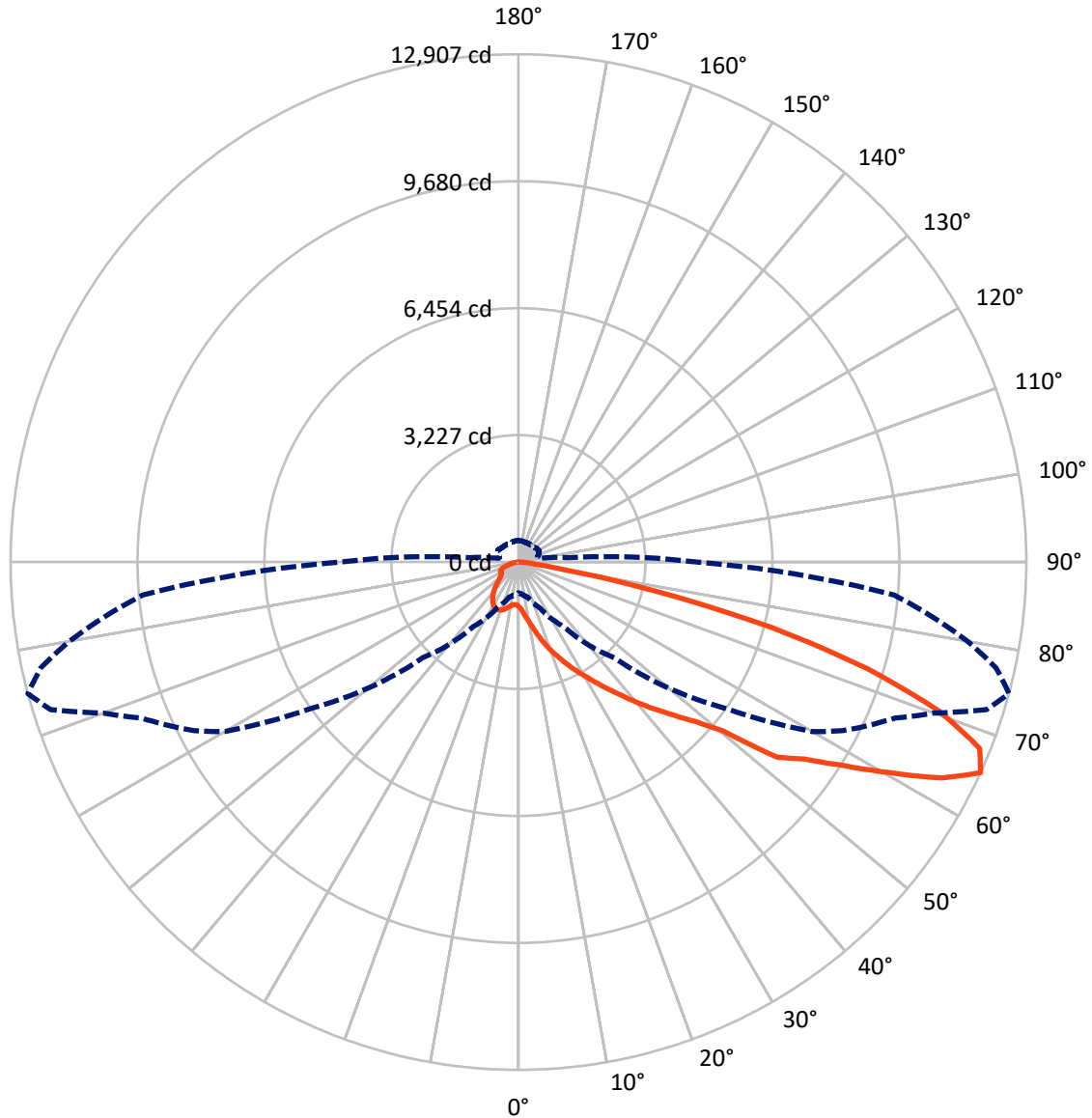
× Max cd  
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 8.1 fc  
 Type II - Short - Semi-Cutoff

REPORT NUMBER: P196286  
CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

### Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral      - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P196286

CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	1962.2	0.0	1962.2
	% Fixture	15.0	0.0	15.0
<b>Street Side</b>	Lumens	11095.8	0.0	11095.8
	% Fixture	85.0	0.0	85.0
<b>Total</b>	Lumens	13058.0	0.0	13058.0
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	133.6	1.0
10°-20°	510.2	3.9
20°-30°	1029.6	7.9
30°-40°	1748.5	13.4
40°-50°	2438.7	18.7
50°-60°	2989.0	22.9
60°-70°	2812.2	21.5
70°-80°	1233.1	9.4
80°-90°	163.2	1.2
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	13058.0	100.0
0°-180°	13058.0	100.0



REPORT NUMBER: P196286

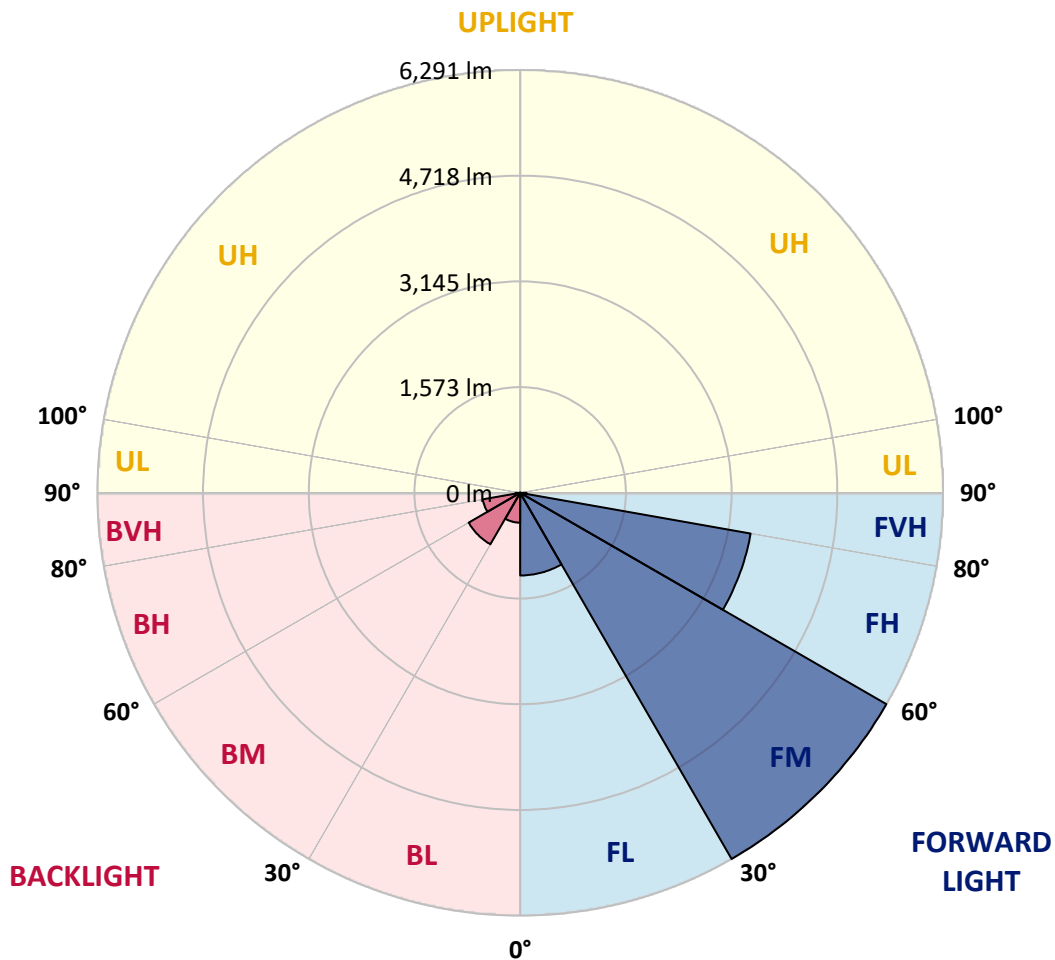
CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	1229.1	9.4			
FM	(30°-60°)	6290.7	48.2			
FH	(60°-80°)	3481.4	26.7			G2/5000
FVH	(80°-90°)	94.6	0.7			G1/100
BL	(0°-30°)	444.2	3.4	B1/500		
BM	(30°-60°)	885.4	6.8	B1/1000		
BH	(60°-80°)	564.0	4.3	B2/1000		G2/1000
BVH	(80°-90°)	68.6	0.5			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B2-U0-G2**

Type II Short





REPORT NUMBER: P196286

CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	57.5°	60°	62.5°	65°
0°	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4
2.5°	1424.7	1408.0	1409.6	1386.4	1352.3	1315.0	1284.2	1267.6	1253.5	1249.3	1226.1
5°	1863.2	1842.4	1835.0	1781.8	1702.1	1607.4	1513.6	1476.9	1447.1	1428.8	1384.0
7.5°	2222.1	2211.3	2201.3	2152.3	2073.4	1952.1	1800.9	1746.9	1697.1	1642.2	1588.2
10°	2466.3	2462.1	2457.9	2424.0	2358.3	2252.8	2090.0	2031.1	1968.8	1898.9	1828.3
12.5°	2650.7	2650.7	2654.0	2625.8	2585.9	2504.5	2356.7	2301.8	2238.7	2165.6	2085.0
15°	2774.4	2777.8	2795.2	2803.6	2782.8	2730.5	2600.9	2552.7	2492.9	2420.6	2340.9
17.5°	2856.7	2863.3	2889.1	2916.5	2943.1	2924.8	2828.5	2783.7	2729.6	2663.2	2588.4
20°	3047.8	3039.5	3040.3	3032.0	3071.0	3085.1	3032.0	2994.6	2951.4	2890.8	2822.6
22.5°	3449.0	3433.2	3392.5	3288.7	3241.3	3236.3	3204.8	3184.9	3151.6	3113.5	3045.3
25°	3972.3	3954.0	3873.5	3702.4	3561.1	3430.8	3372.6	3360.1	3338.5	3312.7	3263.7
27.5°	4513.2	4493.2	4389.4	4173.3	3989.0	3725.6	3544.5	3528.0	3508.0	3497.2	3473.9
30°	4989.1	4967.4	4865.4	4646.0	4423.4	4109.4	3776.3	3718.1	3684.1	3687.4	3674.1
32.5°	5406.9	5387.8	5273.2	5049.7	4823.8	4518.9	4077.0	3986.4	3910.0	3881.8	3891.7
35°	5757.5	5740.1	5614.6	5389.5	5161.9	4908.5	4464.1	4327.9	4203.3	4125.2	4116.0
37.5°	5963.5	5953.5	5865.5	5674.4	5448.4	5262.4	4897.7	4746.5	4563.0	4449.1	4399.3
40°	5951.8	5962.7	5947.7	5861.3	5686.1	5550.6	5349.6	5200.1	5020.6	4851.2	4749.9
42.5°	5782.4	5797.4	5864.7	5909.5	5862.1	5779.9	5744.2	5632.9	5471.8	5292.3	5151.9
45°	5549.8	5563.1	5650.3	5812.3	5947.7	5971.0	6089.7	6034.1	5897.8	5745.0	5590.5
47.5°	5193.4	5219.2	5320.6	5578.0	5900.4	6124.6	6379.6	6405.4	6326.5	6200.2	6055.7
50°	4677.5	4711.6	4853.7	5220.0	5721.0	6282.5	6810.8	6908.8	6877.2	6749.3	6603.1
52.5°	4149.3	4183.4	4372.7	4762.3	5431.9	6347.3	7235.2	7486.2	7667.2	7799.3	7825.1
55°	3599.4	3637.6	3845.3	4293.8	5046.4	6265.1	7538.4	7823.4	8006.9	8144.8	8200.5
57.5°	2978.8	3022.0	3223.0	3676.6	4501.5	5934.4	7875.7	8279.5	8552.7	8765.4	8885.0
60°	2267.0	2321.0	2529.5	2986.3	3785.4	5301.4	8026.1	8623.4	9057.8	9376.8	9566.1
62.5°	1437.0	1491.9	1708.7	2183.1	2970.5	4436.6	7600.7	8472.2	9213.1	9685.0	10032.2
65°	784.2	808.2	928.7	1286.0	2002.7	3442.3	6522.5	7550.1	8617.5	9286.2	9819.5
67.5°	588.1	591.5	604.0	691.1	1066.6	2324.2	5099.6	6040.7	7226.1	8086.7	8723.8
70°	515.1	515.1	516.7	517.5	579.0	1259.4	3454.8	4321.3	5407.7	6278.4	7069.9
72.5°	461.9	456.8	455.2	445.3	453.6	645.5	1880.7	2659.1	3575.3	4552.1	5290.6
75°	398.7	397.9	397.9	387.9	392.9	454.4	815.7	1275.9	1986.2	2895.8	3622.6
77.5°	344.7	338.9	339.7	333.9	349.7	348.0	387.1	525.8	864.7	1521.0	2124.1
80°	284.1	280.0	282.4	279.1	304.0	257.5	260.9	321.5	429.4	667.1	940.3
82.5°	210.1	211.9	227.6	226.0	255.8	173.6	191.1	240.1	289.1	332.3	361.3
85°	123.0	125.4	163.7	172.0	187.7	91.3	117.1	142.9	161.1	178.6	186.1
87.5°	13.3	17.5	91.3	93.9	83.9	27.4	47.4	59.8	63.9	68.1	59.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P196286

CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**CANDELA DISTRIBUTION (continued):**

	67.5°	70°	72.5°	75°	77.5°	80°	85°	90°	95°	100°	102.5°
0°	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4
2.5°	1218.6	1207.8	1196.1	1189.6	1177.9	1167.9	1149.7	1134.8	1118.1	1106.4	1101.5
5°	1361.4	1335.8	1308.4	1288.4	1263.4	1241.9	1200.3	1150.5	1134.8	1101.5	1093.2
7.5°	1547.5	1501.1	1454.5	1416.3	1373.1	1337.4	1267.6	1177.9	1166.3	1113.1	1101.5
10°	1766.0	1697.9	1628.9	1570.0	1506.9	1452.1	1349.1	1222.7	1210.4	1142.2	1130.6
12.5°	2010.3	1927.2	1838.3	1750.3	1675.5	1598.3	1457.8	1292.5	1272.7	1192.0	1176.3
15°	2261.9	2172.2	2069.2	1962.9	1870.7	1768.5	1591.6	1384.0	1347.3	1252.7	1231.1
17.5°	2510.3	2413.1	2305.1	2186.4	2078.3	1956.3	1736.2	1486.1	1422.9	1312.4	1285.0
20°	2750.4	2651.6	2537.7	2421.4	2286.9	2147.3	1884.0	1586.6	1490.2	1362.4	1326.6
22.5°	2968.9	2884.1	2770.4	2636.6	2500.4	2343.4	2034.3	1687.2	1549.3	1400.5	1354.9
25°	3199.0	3121.7	3008.7	2880.0	2721.4	2546.8	2189.7	1782.7	1596.6	1421.3	1364.8
27.5°	3431.6	3365.1	3258.8	3123.4	2953.1	2759.5	2347.5	1870.7	1634.8	1427.9	1359.8
30°	3680.0	3628.4	3530.4	3379.2	3207.3	2992.9	2519.4	1957.1	1658.9	1418.8	1337.4
32.5°	3915.0	3913.4	3826.1	3669.1	3483.9	3248.0	2700.6	2044.3	1671.3	1393.1	1298.3
35°	4159.2	4193.3	4127.7	3978.2	3783.0	3521.3	2900.8	2137.4	1672.2	1347.3	1247.7
37.5°	4436.6	4497.3	4468.2	4326.2	4121.1	3832.8	3135.9	2242.0	1667.2	1284.2	1173.7
40°	4752.3	4835.4	4834.6	4715.0	4495.7	4181.6	3409.1	2359.1	1655.5	1205.3	1086.6
42.5°	5113.7	5212.5	5240.0	5122.0	4900.2	4563.0	3722.3	2487.9	1637.2	1127.2	994.3
45°	5527.4	5614.6	5666.1	5556.5	5333.9	4978.3	4082.0	2634.1	1614.8	1026.7	888.8
47.5°	5970.1	6071.5	6148.8	6054.8	5817.3	5451.8	4508.1	2822.6	1606.5	912.1	775.0
50°	6519.3	6623.9	6790.9	6748.5	6618.1	6324.0	5409.5	3267.9	1609.8	803.3	679.5
52.5°	7881.5	8121.6	8332.7	8238.7	7928.9	7424.7	6142.1	3515.5	1540.1	714.4	613.1
55°	8292.8	8565.2	8876.7	8837.7	8540.3	8031.9	6721.1	3722.3	1472.8	649.6	569.9
57.5°	9012.1	9333.6	9768.9	9760.6	9395.9	8823.6	7466.2	3969.9	1443.7	612.2	548.3
60°	9773.9	10183.4	10784.8	10878.7	10482.4	9886.8	8346.8	4273.9	1447.9	591.5	535.8
62.5°	10330.4	10930.9	11805.7	12086.5	11619.6	10963.4	9260.5	4577.9	1422.9	567.3	520.9
65°	10364.4	11229.2	12470.3	12907.2	12434.5	11591.4	9582.8	4518.1	1273.5	535.0	496.7
67.5°	9533.8	10660.2	12167.9	12647.2	12163.7	11204.3	9017.9	3949.9	1035.0	478.4	455.2
70°	7940.6	9248.0	10813.0	11347.2	10947.6	9976.5	7848.3	3155.0	773.4	403.8	392.9
72.5°	6136.3	7355.7	8777.0	9271.3	8965.6	8111.6	6190.3	2299.3	552.4	327.2	319.0
75°	4386.8	5425.2	6456.9	6645.5	6343.9	5559.7	4016.4	1436.2	387.1	268.3	256.7
77.5°	2716.3	3391.7	3762.2	3519.6	3135.0	2605.9	1634.8	709.4	257.5	218.5	206.8
80°	1205.3	1414.6	1320.8	1177.1	929.6	764.2	499.2	314.9	166.1	168.6	161.9
82.5°	405.4	428.6	417.0	414.5	373.8	327.2	211.9	136.3	93.0	108.0	105.5
85°	197.7	206.8	207.7	215.1	186.9	145.4	57.3	54.0	39.9	58.1	60.7
87.5°	59.8	60.7	54.8	59.8	48.2	33.2	10.8	14.9	7.5	14.1	14.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0





REPORT NUMBER: P196286

CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**CANDELA DISTRIBUTION (continued):**

	105°	107.5°	110°	112.5°	115°	117.5°	120°	122.5°	125°	127.5°	130°
0°	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4
2.5°	1092.3	1089.0	1083.2	1076.6	1074.9	1066.6	1064.1	1060.0	1057.4	1053.3	1050.0
5°	1082.4	1076.6	1069.9	1062.4	1062.4	1050.8	1045.9	1040.9	1040.9	1033.4	1030.0
7.5°	1092.3	1084.8	1077.4	1070.7	1073.3	1060.0	1055.0	1050.0	1049.1	1041.7	1038.4
10°	1120.6	1113.1	1104.0	1097.3	1094.9	1084.0	1078.2	1070.7	1065.8	1060.8	1055.8
12.5°	1163.8	1153.8	1142.2	1128.1	1122.3	1113.1	1104.0	1094.0	1082.4	1077.4	1069.9
15°	1215.3	1198.7	1182.9	1165.4	1149.7	1140.5	1128.1	1112.3	1096.5	1089.9	1079.9
17.5°	1257.6	1240.2	1217.8	1197.1	1168.8	1161.3	1143.9	1124.7	1099.0	1096.5	1081.6
20°	1293.4	1266.8	1239.4	1214.4	1171.3	1167.1	1145.5	1123.1	1086.6	1086.6	1068.3
22.5°	1313.3	1276.7	1244.3	1211.2	1157.2	1153.8	1128.9	1102.3	1057.4	1059.2	1036.7
25°	1316.6	1272.7	1231.9	1192.0	1129.7	1123.9	1092.3	1063.3	1014.3	1011.0	987.7
27.5°	1303.3	1251.9	1204.5	1156.3	1089.0	1076.6	1041.7	1006.8	958.6	950.3	925.4
30°	1272.7	1212.0	1158.8	1103.2	1032.6	1012.6	976.1	940.3	891.3	880.6	857.2
32.5°	1223.6	1154.6	1095.7	1040.0	962.0	937.0	900.5	864.7	817.4	809.1	787.5
35°	1158.8	1081.6	1019.3	960.2	882.2	856.4	821.5	790.0	746.8	743.5	728.5
37.5°	1077.4	996.9	930.4	873.9	799.9	786.6	750.9	727.7	691.9	695.3	687.8
40°	985.2	903.0	839.8	790.0	726.0	714.4	692.7	675.4	644.6	653.8	654.6
42.5°	892.1	809.9	752.6	707.8	652.9	645.5	630.4	620.5	597.3	615.5	623.0
45°	786.6	710.2	661.2	627.2	586.5	586.5	579.0	578.2	562.4	588.1	595.6
47.5°	684.5	624.7	590.7	569.9	541.7	554.8	552.4	559.0	547.4	574.0	580.6
50°	607.2	565.7	544.9	535.0	515.1	535.8	540.7	549.9	539.9	563.2	568.1
52.5°	558.2	530.8	519.1	516.7	502.6	528.4	536.6	544.9	533.3	554.8	554.0
55°	530.8	512.5	508.4	513.3	502.6	527.5	535.8	541.7	531.6	546.6	545.7
57.5°	520.9	510.9	513.3	520.9	513.3	534.1	538.3	544.9	535.0	541.7	544.9
60°	520.0	520.0	530.0	539.9	535.0	549.9	552.4	551.6	542.5	543.3	544.9
62.5°	515.1	527.5	544.1	559.9	558.2	576.5	578.2	567.3	559.9	551.6	549.1
65°	499.2	520.0	544.1	565.7	569.1	597.3	600.6	589.8	584.8	570.7	559.9
67.5°	464.3	490.9	519.1	545.7	551.6	589.8	597.3	601.4	604.0	594.7	580.6
70°	405.4	432.8	461.9	492.6	500.9	543.3	559.0	578.2	593.1	606.4	601.4
72.5°	329.8	354.7	379.6	407.9	420.3	464.3	485.1	518.3	541.7	575.6	589.8
75°	261.7	276.6	291.5	309.0	319.0	362.2	387.9	427.8	459.4	506.7	538.3
77.5°	206.0	213.5	221.0	228.4	232.6	256.7	277.4	317.3	353.8	413.7	460.2
80°	158.7	162.9	163.7	166.1	164.5	176.2	183.6	207.7	239.3	298.2	353.0
82.5°	102.2	105.5	107.2	111.3	103.0	117.9	123.0	125.4	142.1	185.3	224.3
85°	57.3	58.1	59.0	60.7	49.0	63.9	64.8	60.7	59.0	76.4	86.4
87.5°	14.1	13.3	14.1	14.1	5.8	13.3	13.3	9.1	6.6	12.5	9.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



REPORT NUMBER: P196286

CATALOG NUMBER: NAV-AF-02-D-UNV-T2R

**CANDELA DISTRIBUTION (continued):**

	135°	145°	155°	165°	175°	180°
0°	1131.4	1131.4	1131.4	1131.4	1131.4	1131.4
2.5°	1042.5	1040.9	1041.7	1037.5	1035.8	1036.7
5°	1025.9	1022.5	1022.5	1020.1	1016.7	1016.7
7.5°	1033.4	1026.7	1024.3	1019.3	1014.3	1015.1
10°	1045.0	1033.4	1025.1	1017.6	1011.8	1011.8
12.5°	1052.5	1031.7	1019.3	1009.2	1002.6	1002.6
15°	1054.2	1022.5	1004.3	993.5	986.8	986.8
17.5°	1044.1	1004.3	981.0	966.9	959.4	961.1
20°	1019.3	970.3	942.9	927.9	920.3	921.3
22.5°	980.2	923.7	892.1	874.7	867.3	867.3
25°	927.0	865.6	831.6	817.4	810.8	810.8
27.5°	866.4	803.3	773.4	762.6	758.4	758.4
30°	798.3	745.9	724.4	716.9	710.2	710.2
32.5°	740.9	703.6	696.1	686.2	668.7	667.9
35°	695.3	691.1	685.3	655.4	630.4	627.2
37.5°	670.3	695.3	658.8	607.2	587.3	586.5
40°	657.0	680.4	617.2	592.3	589.8	589.8
42.5°	625.5	642.1	614.7	600.6	600.6	601.4
45°	592.3	606.4	620.5	608.0	612.2	613.1
47.5°	569.1	597.3	620.5	609.7	618.1	623.0
50°	547.4	588.9	608.0	608.0	617.2	618.1
52.5°	542.5	577.4	596.5	605.6	606.4	602.2
55°	543.3	568.1	587.3	598.9	593.9	593.9
57.5°	542.5	563.2	579.8	584.0	586.5	586.5
60°	543.3	556.6	569.9	568.1	576.5	576.5
62.5°	545.7	547.4	554.0	552.4	564.9	564.9
65°	551.6	535.8	531.6	533.3	548.3	547.4
67.5°	562.4	520.0	506.7	507.6	529.2	525.8
70°	578.2	498.4	478.4	473.5	510.0	504.2
72.5°	583.2	473.5	441.9	436.9	458.6	441.9
75°	559.9	453.6	402.8	386.3	377.2	372.1
77.5°	499.2	441.1	362.2	327.2	313.1	309.9
80°	413.7	415.3	309.0	267.5	310.7	309.9
82.5°	312.3	358.9	247.6	231.8	225.2	187.7
85°	151.2	270.0	190.3	159.5	95.5	90.5
87.5°	13.3	112.9	109.7	71.4	32.4	30.7
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)